

## Johnston County Natural Areas Inventory

### MIDDLE CREEK FLOODPLAIN KNOLLS

**Site Number:** 20

**Site Significance:** Regional

**Ownership:** Private

**Size:** about 140 acres

**Quadrangle:** Edmondson

**SIGNIFICANT FEATURES:** This is a somewhat unique natural area, located primarily on one large and one small knoll protruding above an otherwise wide floodplain. No other such geomorphic features are known in the county, and perhaps anywhere else in the state (at least a knoll that is nearly 80 feet high). Portions of the knolls contain an excellent example of Mesic Mixed Hardwood Forest, with a most unusual shrub composition. In addition, a heronry, a very large beaver pond complex, and a good quality bottomland forest surround the knolls.

**LANDSCAPE RELATIONSHIPS:** The natural area lies about 1.5 miles east (downstream) of the Middle Creek Amphibolite Slope. The Middle Creek Aquatic Habitat lies adjacent to these two terrestrial sites.

**SITE DESCRIPTION:** Floodplains of rivers and large creeks typically have a flat topography, as flooding events over time normally erode floodplain soils evenly and deposit sediments broadly over the floodplain. In some cases, sediments are deposited inequitably, such that natural levees are formed along the river channels and backswamps are formed farther from the main channel. Some topography in floodplains feature a ridge and swale system of former levees and stream channels left behind by the migrating river. However, in the nearly 3/4-mile wide Middle Creek floodplain just east of I-40, there is one large protrusion of land reaching close to 80 feet above the floodplain, and a small knoll (about 20 feet high) lies just northwest of the first knoll. (Another knoll at least 30 feet high lies on the south side of Middle Creek but was not visited during this inventory.) Their origin is a bit mysterious, as the knolls are not obviously just a spur of the uplands to the north cut off by floodwaters and sediment to form "islands". Clearly, the underlying rock material, suspected of being amphibolite, is relatively resistant to erosion.

The larger knoll is an elongate, north-south drumlin-like protrusion that is heavily forested on the western half but has recently been cut-over on its summit. The eastern side has been thinned and shows tree blowdown caused by Hurricane Fran in 1996. Surprisingly, there are practically no rocks on the surface, except for a few at the southern tip next to Middle Creek. The western half is a mature, high-quality Mesic Mixed Hardwood Forest. American beech (*Fagus grandifolia*) dominates the canopy, but other trees include northern red oak (*Quercus rubra*), Shumard oak (*Q. shumardii*), and farther north tuliptree (*Liriodendron tulipifera*) and white ash (*Fraxinus americana*). The subcanopy contains trees such as flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), redbud (*Cercis canadensis*), and slippery elm (*Ulmus rubra*); the latter two species are not widespread in the county and typically indicate somewhat circumneutral soils. Of great interest is the unusual shrub layer, comprised of species that are scarce in Johnston County. Perhaps new for the county is a large population of silky camellia (*Stewartia malacodendron*), which is the dominant shrub near the southern end of this slope. Growing with